

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C.**

In the Matter of	)	
	)	
Service Rules for the 746-764 and 776-794 MHz	)	WT Docket No. 99-168
Bands, and Revisions to Part 27 of the	)	
Commission's Rules	)	

**COMMENTS OF MOTOROLA**

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## Summary

Motorola hereby offers its views on how to maximize the productive use of the 36 MHz of “commercial” spectrum between 746-806 MHz. Motorola believes that proper spectrum management requires the FCC to reconsider its proposal to rely on the 2.3 GHz Wireless Communications Service as a precedent thereby assigning the 746-806 MHz commercial allocation for broad, flexible use. Motorola strongly believes that this *laissez faire* approach to spectrum management does not serve the public interest in part because it inhibits manufacturers from devoting resources to develop products for the allocation.

The flexible use provisions proposed in the *Notice* are particularly unfortunate considering the expressed statement of need provided by the private wireless industries over the past few years. Motorola urges the FCC to fully consider its ability to identify and tailor a portion of this 36 MHz band in ways that best meet the needs of this user community consistent with its existing Congressional mandate to auction this spectrum for commercial services. Finally, Motorola addresses steps needed to protect public safety operations which will occupy adjacent segments of the 746-806 MHz band and mechanisms that will allow faster access to the band during the DTV transition period.

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Motorola Inc. (hereinafter Motorola) submits these comments in response to the *Notice of Proposed Rule Making* in the above-captioned proceeding.<sup>1</sup>

**I. Introduction**

In this proceeding, the Commission will consider service rules for 36 MHz of “commercial” spectrum between 746-806 MHz that has been previously allocated for broadcast television service. In the *1997 Balanced Budget Act*, Congress directed the FCC to redevelop the spectrum occupied by TV channels 60-69 by allocating 24 MHz for public safety applications and the remaining 36 MHz for commercial services.<sup>2</sup> The FCC is already considering the public safety use of this allocation in a separate proceeding.<sup>3</sup>

In these comments, Motorola offers its views on how to maximize the productive use of the commercial portion of this allocation. Motorola believes that proper spectrum

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<sup>1</sup> Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, WT Docket No. 99-168, *Notice of Proposed Rule Making*, FCC 99-97, released June 3, 1999 [*hereinafter Notice*].

<sup>2</sup> See *Balanced Budget Act of 1997*, Pub. L. No. 105-33, § 3004, 111 Stat. 251 (1997) (BBA-97).

<sup>3</sup> See, *The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010 and Establishment of Rules and Requirements For Priority Access Service*, WT Docket No. 96-86, *First Report and Order and Third Notice of*

management requires the FCC to reconsider its proposal to rely on the 2.3 GHz Wireless Communications Service as a precedent thereby assigning the 746-806 MHz commercial allocation for broad, flexible use. Motorola strongly believes that this *laissez faire* approach to spectrum management does not serve the public interest in part because it inhibits manufacturers from devoting resources to develop products for the allocation. In addition, adopting rules that permit the deployment of new broadcast services in this band would undermine the redevelopment of this band for mobile use as well as the FCC policy to concentrate the deployment of broadcast television stations within a core allocation between TV channels 2 and 51.

The flexible use provisions proposed in the *Notice* are particularly unfortunate considering the expressed statement of need provided by the private wireless industries over the past few years.<sup>4</sup> Motorola urges the FCC to fully consider its ability to identify and tailor a portion of this 36 MHz band in ways that best meet the needs of this user community consistent with its existing Congressional mandate to auction this spectrum for commercial services. Finally, Motorola addresses steps needed to protect public safety operations which will occupy adjacent segments of the 746-806 MHz band and mechanisms that will allow faster access to the band during the DTV transition period.

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*Proposed Rule Making*, FCC 98-191, released September 29, 1998.

<sup>4</sup> See e.g., An Allocation of Spectrum for the Private Mobile Radio Services, *Petition for Rulemaking*, RM-9267, Submitted by the Land Mobile Communications Council on April 22, 1998, [“LMCC Petition”]. See Also, Motorola’s Statement of Support for the LMCC Petition, submitted June 1, 1998.

## **II. The FCC's Rules Should Define The Scope Of Allowed Services In The Band**

### **A. Excessive Flexibility Is Not In The Public Interest**

One of the many goals of the FCC's digital television (DTV) proceeding was to increase the efficient use of spectrum by the broadcast television service in order to reclaim contiguous blocks of spectrum that could be made available for other beneficial uses.<sup>5</sup> In Motorola's view, the landmark decision to reallocate the UHF-TV channels 60-69 from the broadcast services is undermined by the proposed flexible service rules that do little to ensure the timely provision of new communication services that benefit the US public. Motorola believes that it is necessary for the FCC to refine its proposed service rules for this band to define that specific mobile and complementary fixed services are the ultimate users of this spectrum.

The flexible use provisions contained in the *Notice* are similar in scope to the rules adopted for the 2.3 GHz Wireless Communications Service authorized under Part 27 of the FCC's rules. In Motorola's view, the underwhelming success of the WCS service should discourage the FCC from using those rules as a framework for spectrum as potentially useful as the 746-806 MHz bands. The WCS auctions concluded more than two years ago, and most licensees are still struggling to identify an appropriate business case for the use of that spectrum.

Motorola sees many similarities between the WCS and the proposals governing the commercial use of the 746-806 MHz band. Indeed, comments made by Motorola in response to the FCC's WCS proposals apply equally to the instant proceeding:

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<sup>5</sup> See, e.g., Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service, MM Docket No. 87-268, *Fifth Report and Order*, 12 FCC Rcd 12809 (1997) at ¶4.

“While we agree that some degree of freedom and flexibility are desirable, Motorola is very concerned that a total laissez-faire approach is not in the best interest of telecommunications manufacturers, providers or users.”<sup>6</sup>

In those comments, Motorola noted that in order for a spectrum band to be successfully used to provide services, manufacturers must be willing to invest necessary resources in research and development to create products that will operate in that band. The decision to invest resources on one project rather than another is always based on the projected return on that investment. Broad spectrum allocations with little real definition confound these estimations of return. There is no consensus among operators as to what type of technology will be deployed in the band and, therefore, there is no way of estimating the potential market size or the equipment costs. This leads to caution from investors who are unsure of the potential business opportunities, caution from operators who cannot raise capital without being able to describe the business opportunities, and caution from manufacturers who see muted interest at best in technologies for the spectrum.

Once again, Motorola’s comments in the WCS proceeding are equally applicable to today’s activities:

The combination of Congressional direction and Commission proposals for the 2.3 GHz band could unintentionally fracture the market, raise equipment costs to users, retard manufacturer investment, increase interference and threaten the investment of existing operators. Such results are simply not compatible with sound spectrum management. Motorola is particularly concerned if the approach being used at 2.3 GHz is viewed by Congress and/or the Commission as a blueprint for spectrum reform. Spectrum is too valuable a communications resource to be treated only as a convenient way of meeting the Federal budget requirements. Wireless telecommunications, and the many civil societal needs it fills,

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<sup>6</sup> See Comments of Motorola, GN Docket No. 96-228, submitted December 4, 1996.

contribute far too much to the U.S. economy and quality of life to be managed solely on this basis.”<sup>7</sup>

Motorola sees no evidence from the WCS experience that leads us to alter this opinion. Lack of activity towards defining a service for the WCS band is the clearest indication that such extreme flexibility does not work in the real world. While auction revenues should not be equated with the public interest, we also note that the WCS auctions attracted less than one percent of the revenue projected by budget experts.<sup>8</sup> Though other factors are likely contributors as well, Motorola believes that the uncertainty in the manufacturer, operator, and investment communities created by the “flexible use auction” has been a major factor in the lack of significant capital available to develop WCS service. Therefore, Motorola believes the Commission must act to bring sufficient definition to the allocation in order to avoid an experience similar to that at 2.3 GHz. Proper spectrum management includes allocating spectrum in response to identified needs as well as the crafting of technical and service rules to reduce mutual exclusivity.<sup>9</sup> In this regard, Motorola fully supports the views recently expressed by Commissioner Ness:<sup>10</sup>

Auctions, however, are not a substitute for the allocation process. In other words, we should not -- indeed, we must not -- back away from our

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<sup>7</sup> *Id.*

<sup>8</sup> See, e.g., RCR Viewpoint, Tracy Anderson Ford, April 28, 1997 (“the sale of 128 Wireless Communications Services licenses ended last week, racking up \$13.6 million for the U.S. Treasury... Not the \$3 billion the government once projected the flexible use auction would raise, nor even the revised \$1.8 billion government estimate, but \$13.6 million.”)

<sup>9</sup> See e.g., 47 U.S.C. §309(j)(6)(E).

<sup>10</sup> Remarks by Commissioner Susan Ness Before PCIA’s PCS ’98, Orlando FL, September 23, 1998.



fundamental duty to allocate and reallocate spectrum in broad categories in accordance with the public interest. This is so for both policy as well as pragmatic reasons. The value to the public of certain uses of the spectrum does not always translate into pure economic terms.

Motorola believes that this means that after a period of investigation the FCC should allocate spectrum to certain categories of services based on public interest considerations. An allocation to a very broad category with little definition with the intention of allowing the auction process to resolve conflicts is not, in Motorola's opinion, consistent with the Commissioner's views, nor is it good policy.

In the case of this particular spectrum, we believe that the public interest is served by service rules that do not support the future use of traditional broadcasting operations in the commercial 746-806 MHz band but that fully consider the needs of the Private Mobile Radio Service whose operations are critical to the public yet whose spectrum needs are not being served by current Commission processes. We also believe that configuring a segment of this spectrum in smaller license blocks with smaller geographic areas would promote Commission policies regarding small business participation in the telecommunications market.

#### **B. The Commission Should Actively Manage This Spectrum**

While Congress has authorized the FCC to auction this spectrum,<sup>11</sup> the FCC is obligated to carry out this mandate consistent with its authority as defined in Section 309(j) of the Communications Act. As referenced earlier, Section 309(j)(6)(E) directs the Commission to remain cognizant of its "obligation in the public interest to continue to use engineering solutions, negotiation, threshold qualifications, service regulations, and

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<sup>11</sup> See 47 U.S.C. §337.

other means in order to avoid mutual exclusivity in application and licensing proceedings.”<sup>12</sup> Of equal importance is the Act’s requirement that, in assigning frequencies, “the Commission may not base a finding of public interest, convenience, and necessity on the expectation of Federal revenues from the use of a system of competitive bidding.”<sup>13</sup>

Based on this Congressional guidance, the FCC should use the time it has, whether six months or eighteen months, depending on pending Congressional action, to ensure that it meets its obligation to manage the spectrum. Then, presuming that mutually exclusive applications are received for the permitted uses, and consistent with the FCC’s obligations under Section 309, auctions would likely be required for assigning licenses.

We understand that the FCC is investigating the use of combinatorial bidding in hopes this may help some bidders buy enough markets to reduce the possibility of a fractured market.<sup>14</sup> As we have stated before,<sup>15</sup> Motorola accepts the efficiency of auctions to assign licenses in mutually exclusive situations, but believes that the FCC must not rely on the auction mechanism essentially to replace the allocation process.<sup>16</sup>

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<sup>12</sup> 47 U.S.C. §309(j)(6)(E).

<sup>13</sup> 47 U.S.C. §309(j)(7).

<sup>14</sup> *See Notice* at ¶22, ¶82.

<sup>15</sup> *See, e.g.,* Reply Comments of Motorola, ET Docket No. 95-18, March 5, 1999 (Amendment of Section 2.106 of the Commission’s Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service).

<sup>16</sup> Nor should the Commission view auctions as the only tool available for resolving mutually exclusive applications. In fact, the Commission is compelled by statute to rely on engineering solutions, entry criteria, service rules, and other mechanisms to avoid such applications at the outset. 47 U.S.C. §309(j)(6)(E).

### **C. The Service Rules Should Exclude Traditional Broadcast Services**

Motorola recommends the Commission not allow additional broadcasting service operations in this spectrum, as doing so would undermine the inherent ability for any meaningful mobile and fixed service in the band. It would also frustrate a previously adopted policy to transition broadcast television operations to core spectrum in TV channels 2-51.<sup>17</sup>

The rationale for crafting rules which exclude traditional broadcast operations is based on the goal in the DTV transition process to recover contiguous blocks of spectrum and to manage the recovered spectrum in a way that will best serve the public interest. After long and arduous debate, the Commission has already adopted rules and policies to migrate broadcast television to a core set of spectrum in TV channels 2 through 51. Associated with this policy, both Congress and the Commission adopted provisions which cause incumbent television broadcast stations operating on channels 60-69 (746-806 MHz) as well as on channels 52-59 (698-746 MHz) eventually to vacate the band. The instant proceeding is another in a series of steps in redeveloping prime spectrum that for too long has been unavailable for beneficial mobile and fixed services. Motorola believes that attempting to create a set of rules to match the widely divergent market and regulatory requirements for additional broadcast, as well as mobile and fixed operations, would make the band virtually useless to all concerned.

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<sup>17</sup> See, e.g., Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service, MM Docket No. 87-268, *Sixth Report and Order*, 12 FCC Rcd 14588 (1997) at ¶76 (“we believe that the public interest is best served by developing a Table of DTV Allotments that meets the DTV spectrum needs of broadcasters during the transition; facilitates the early recovery of spectrum from channels 60-69; and also facilitates the eventual recovery of 138 MHz of spectrum currently being used for analog broadcasting.”)

Motorola does not believe that it is possible to craft service rules that will permit efficient operation of advanced mobile systems and traditional wide area broadcast systems in the same geographic area. The problems created by attempting to allow both services are so severe that the uncertainty created in the mind of the wireless community would lead to an auction with worse results than the 2.3 GHz WCS auction. By “worse results” we mean not only monetarily, but more importantly in terms of putting the spectrum resource to work for the public. We base this statement on two experimental data points: existing sharing in the channel 14-20 TV band, and the recent rule change for the 2.5 GHz MMDS spectrum.

Land mobile operations currently share spectrum with TV broadcasting in the 470-512 MHz band in eleven metropolitan areas. In this band, for selected cities in the US, public safety and private land mobile systems can operate subject to certain restrictions. Those restrictions dictate that the land mobile base stations and mobile units are not permitted to come within a specified distance of the co-channel and adjacent channel TV transmitters. Such a scheme works only where the system coverage requirements are relatively localized. Even then, the range of products at 470-512 MHz is somewhat tempered by a market which is limited by confinement to eleven metropolitan areas and by overly protective mobile/television sharing criteria. For a licensee using the spectrum for commercial purposes and looking for wide area deployment of a system, any broadcasting operations in the same geographic area would lead to drastically reduced service areas and an unrealizable business plan.

A solution to this problem would require the creation of rules that would allow, for example, a mobile system licensee and an adjacent channel broadcast service provider to operate in the same geographic area. Motorola believes the recent situation with respect to MMDS and ITFS operations shows that such rules are not practically achievable.<sup>18</sup>

Both MMDS and ITFS operators inhabit the 2.5 GHz spectrum range. While the ITFS operators are using primarily a wide-area broadcast technology, most of the MMDS operators want to convert their operations to a cellularized two-way fixed system employing frequency reuse. The resulting rules, which do allow two-way MMDS operation (fixed only), require an elaborate interference analysis be performed before a system is deployed to ensure that no interference to the ITFS operations will occur. This procedure was proposed by a group of some 100 MMDS and ITFS operators. This group recognized that in certain cases, even though the required analysis was performed, interference to existing operation might still occur. As such the group put forth 12 techniques that can be used to mitigate the interference on a case by case basis.<sup>19</sup> Almost all of these techniques are not applicable to a mobile service. In addition, their method of estimating interference is not applicable for mobile transmitters. Furthermore, the group recognized that the best way to avoid harmful interference was to spectrally separate the two-way operations from the broadcast operations.

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<sup>18</sup> See, Amendment of Parts 1, 21, and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions, MM Docket No. 97-217, *Report and Order*, FCC No. 98-231 (released Sept. 25, 1998).

<sup>19</sup> Comments of The Petitioners, January 8, 1998, MM Docket No. 97-217.

In that proceeding, Motorola essentially agreed with these positions:<sup>20</sup>

*The Petitioners* and CTN both note that it may prove advisable to isolate in frequency two-way data services and one-way video operations. To this end, *The Petitioners* even recommend that the FCC adopt mandatory relocation procedures to enhance the ability of licensees to segregate one-way and two-way transmitters.<sup>21</sup> Motorola agrees that there are deployment scenarios, especially during the initial phases of two-way deployment, where it is necessary to isolate one-way and two-way systems.

The important point to note here is that this resolution of the problem for MMDS and ITFS, complicated though it may be, still does not address the issues associated with coexistence of mobile and broadcast operations. The sharing allowed between MMDS and ITFS is geared only toward fixed MMDS operation.

The Commission has a stated intent to promote spectrum efficiency in the broadcasting service, to concentrate all broadcasting into a core band, and to reclaim spectrum to the benefit of society. There is no compelling need to introduce a complex sharing arrangement into the 746-806 MHz band. The FCC should avoid this problem by simply creating service rules that do not allow additional broadcast services in this band. To the contrary, the Commission should take further steps to expedite migration of incumbent television broadcast from the band. Otherwise, new mobile and fixed users at 746-806 MHz will be faced with limited operations until conclusion of the television transition period in 2006 or beyond.

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<sup>20</sup> Comments of Motorola, MM Docket No. 97-217, July 2, 1998.

<sup>21</sup> Proposed Section 74.902(k), *Letter to Ms. Magalie Roman Salas from Paul J. Sinderbrand*, MM Docket No. 97-217, May 15, 1998.

**D. Spectrum Requirements Of The Private Mobile Radio Service Should Be Considered In The Process Of Establishing Service Rules**

As has been well documented, the Private Mobile Radio Service is experiencing a continued shortage of spectrum.<sup>22</sup> There is no better example of a radio service which, to paraphrase from the comment by Commissioner Ness, above, is valuable to the public but whose value cannot be measured by the ability of the members of the service to participate in FCC auctions.

The position that the public benefits by the operations of PMRS systems is unassailable.<sup>23</sup> Private Mobile Radio Services are used to support the efficient operations of the primary businesses of the radio systems' users. These users often have requirements that can only be met by using a private radio system. These systems result in safer operations of key infrastructure elements like utilities, railroads, and pipelines, manufacturing facilities, shipping facilities, and other operations that serve the public. These systems enable commercial operations to run more efficiently, which leads to lower costs, higher productivity, improved competitiveness, and better job opportunities for US workers. The list of benefits can be extended indefinitely. Such benefits accrue to the public at large, and in most cases this benefit is much greater than that the public sees from any incremental auction revenues routed into the U.S. Treasury.

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<sup>22</sup> An Allocation of Spectrum for the Private Mobile Radio Services, RM-9267, Submitted by the Land Mobile Communications Council on April 22, 1998. According to this petition, the Private Mobile Radio Service requires an immediate allocation of 15 MHz to satisfy their needs, and a totals of 44 MHz and 125 MHz by years 2004 and 2010.

<sup>23</sup> Support by commenters for a spectrum allocation to PMRS are recounted in the Reply Comments of Motorola to the LMCC Petition, July 16, 1998.

None of these benefits, however, translates into the ability of traditional PMRS operators to compete in spectrum auctions against CMRS carriers. The Commission has asked about “the extent to which, consistent with the statute, the spectrum here can and should be available for private mobile and private fixed radio services.”<sup>24</sup> The statute authorizing auctions in this band says that:<sup>25</sup>

IN GENERAL- Not later than January 1, 1998, the Commission shall allocate the electromagnetic spectrum between 746 megahertz and 806 megahertz, inclusive, as follows:

[...]

36 megahertz of that spectrum for commercial use to be assigned by competitive bidding pursuant to section 309(j).

We believe that an allocation by the FCC of a portion of this spectrum for the Private Mobile Radio Service is consistent with the Congressional requirement to allocate the spectrum “for commercial use.” Though services requiring electromagnetic spectrum are not the primary businesses for the end users of PMRS spectrum, they unquestionably use the spectrum in support of commerce. Arguably the activities of the PMRS user community have a critical impact on the US economy.

For this reason alone, bolstered by the usefulness of a PMRS allocation for protecting vital public safety applications (discussed further below), Motorola recommends that the Commission set aside a portion of this 36 MHz for PMRS users.

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<sup>24</sup> See Notice at ¶ 15.

<sup>25</sup> 47 U.S.C §337.



### **III. The Previously Allocated Public Safety Spectrum Must Be Protected From Interference**

The FCC has already allocated 24 MHz of this reclaimed TV spectrum to public safety uses. There are three locations at which the public safety spectrum will be directly adjacent to the commercial spectrum that is the subject of this proceeding: 764 MHz, 776 MHz, and 794 MHz. It is not possible to overstate the importance the FCC must place on the protection of the public safety spectrum, especially near these interfaces. When a commercial spectrum operation begins, it must not only protect any public safety systems that are already in place, it also must not restrict other public safety systems from starting operations in their authorized spectrum. From a technical standpoint, a given adjacent channel interfering signal will impact narrower band systems more readily than wider band operations. Therefore, excessive signals from adjacent spectrum could be particularly problematic as 6.25 kHz public safety channels are next to these interfaces.

As part of its comments in the public safety proceeding, Motorola submitted an Appendix entitled “Technical Recommendations for the 746-806 MHz Public Safety Band.” Section 4 of that appendix addressed intersystem interference issues and noted:<sup>26</sup>

Mobile and fixed stations transmit noise outside of their intended frequency of operation. This noise can extend over a very broad band and can limit the range of other communication services. Therefore, out of band noise must be restricted to minimize the impact on critical public safety communications.

The following analysis is based on the assumption that the commercial spectrum is laid out with the same mobile station and fixed station frequency constraints as public safety. Namely, that the commercial mobile transmit band is allocated 776-794 MHz and it is paired with the mobile station receive band at 746-764 MHz. We recommend that this be

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<sup>26</sup> Appendix of Comments Of Motorola To The Second NPRM, 1997, WT Docket No. 96-86, December 22, 1997.

done. It should also be noted that the limitations on interference into public safety systems from other systems is consistent with the interference allowed between integrated voice and data systems as proposed in section 2.4.1 and 2.4.2.

A key element of Motorola's filing was the concept of adjacent channel coupled power ("ACCP") as the measure to be used for determining the allowed level of out-of-band emissions. In developing the service rules for the public safety portion of the 746-806 MHz band, the Commission noted that "[a]s wireless communications evolve, the complexity of determining compatibility between different types of systems increases... Consequently, rather than specifying emission masks for the various types of communications in the 700 MHz band, we will specify emission limits based on ACCP, as suggested by Motorola."<sup>27</sup> The Commission's observation of the increasing complexity of intersystem interference problems is precisely correct, and is directly relevant to this situation. For the same reasons discussed in the previous comments, and for the reasons accepted by the Commission in its previous decision, Motorola recommends that the industry-preferred concept of coupled power be the basis for all out-of-band emission specifications in the 746-806 MHz band. Though we made specific recommendations for the intersystem interference situation in our previous comments, we are reviewing those recommendations before entering them as part of the record in this proceeding.

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<sup>27</sup> *First Report and Order and Third Notice of Proposed Rulemaking*, WT 96-86, at ¶138.

Of course, it is impossible for the FCC to impose realistic interference controls that would prevent all incidents of interference between public safety and commercial systems. The reason is that the systems typically have very different basic configurations. Commercial mobile systems typically use low cell sites and employ high frequency reuse, while public safety systems typically use higher sites to cover large geographic areas with each site. This inevitably leads to the classic “near-far” problems when the systems operate in adjacent spectrum. The issue is similar to, but not as extreme as, the difficulties associated with broadcasting and cellular systems sharing the same spectrum, as discussed above. One of the best solutions for curing the problem, also discussed above, is frequency separation between the two types of systems.

Motorola believes that the Commission has an opportunity in this case to practice good spectrum management techniques, and to satisfy many of its important constituencies at the same time. The Commission must be very cautious about how the systems that are in the spectrum near the public safety spectrum are deployed. As discussed, it is not only the type of equipment that is important, it is the system configuration as well. A constituency which has operational characteristics very similar to that of public safety, and which, as discussed above, is experiencing a continued shortage of spectrum, is the Private Mobile Radio Service. Motorola recommends that some spectrum from this 36 MHz near the commercial/public safety interface points be reserved for PMRS use. This would have the following benefits:

- It would benefit public safety by providing frequency separation between the larger commercial and public safety operations, minimizing the chance of interference.
- It would benefit the commercial operators using the remaining spectrum by alleviating much of the concern of interfering with a public safety system.

- It would benefit the PMRS users by providing them with access to much-needed spectrum in a frequency band at which equipment will be readily available.
- It would benefit the public safety users and PMRS users simultaneously by creating a larger market for equipment in this band. Much equipment used by PMRS users is very similar to that used by public safety users.
- It would benefit the FCC by, among other things, reducing the number of public safety/commercial system interference complaints that will be received.

In Motorola's opinion such a spectrum management decision would be the right one for all concerned parties. We will introduce more details of such a proposal later in this proceeding.

#### **IV. The FCC Should Promote Greater Sharing With Incumbent TV Broadcast Stations**

The Commission has proposed adopting the same criteria for sharing with incumbent TV broadcasting as it adopted in the service rules for the public safety spectrum. Because there are still outstanding petitions for reconsideration of the decision pertaining to the public safety spectrum, Motorola recommends that the Commission resolve those petitions before applying those TV sharing rules to this band. Specifically, Motorola has stated:<sup>28</sup>

In comments submitted in prior phases of this proceeding, Motorola made specific recommendations concerning co-channel and adjacent channel sharing between land mobile radio and television broadcast stations.<sup>29</sup> Those comments recommend that, in addition to using a 40 dB desired to undesired signal protection ratio at the television station's Grade B contour, other technical factors should be considered in the rules to enhance the ability of public safety users to deploy systems in the proximity of television stations. For example, Motorola cited the propagation difference between frequencies in the 470-512 MHz band and the 746-806 MHz band (about 5.3 dB) and a conservative value for

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<sup>28</sup> Motorola Petition for Reconsideration, WT Docket 96-86.

<sup>29</sup> See Comments of Motorola, WT Docket No. 96-86, December 22, 1997. See Also, Letter to Magalie Roman Salas from Leigh Chinitz, WT Docket No. 96-86, submitted May 20, 1998.

television antenna front-to-back directivity (about 15 dB) as factors that mitigate against interference to broadcast reception. Motorola also noted that other effects (the differing polarization of land mobile and broadcast transmissions, the conservative nature of R-6602,<sup>30</sup> improvements in television receivers, and realistic mobile antenna heights) would all serve to further protect reception of the television broadcast signal.

We believe that the sharing criteria for the two parts of the band (public safety and commercial) can be the same, but we continue to believe that they should be more aggressive than what has been adopted for the public safety band, and which are being proposed here.

## **V. Summary**

The Commission is at a crossroads in its effort to redevelop spectrum in the 746-806 MHz band. It can choose the path establishing rules to serve the public or it can choose flexibility and implementation of additional broadcast, making this spectrum virtually unusable for viable mobile and fixed operations for the foreseeable future. Further, adding new broadcast operations in particular would be inconsistent with the Commission's direction to migrate television broadcast to core spectrum in channels 2 through 51.

Motorola also believes the Commission has an opportunity to dedicate a portion of the band for private mobile service to support efficiency, safety and growth of those commercial entities that are largely responsible for the nation's productivity and employment. Doing so would also help protect public safety operations in adjacent spectrum within the 746-806 MHz band, an issue of utmost importance to the safety of emergency responders and ultimately the public at large.

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<sup>30</sup> Footnote omitted

We urge the Commission to take the right path, not just the easy path. Clearly defining the services, avoiding additional broadcast use, dedicating a segment of the spectrum for private mobile service, protecting public safety in adjacent segments within the band and avoiding overly protective mobile/TV sharing criteria during the transition period to DTV are all actions that will help the public realize true benefits from this important spectrum redevelopment effort.

Respectfully Submitted

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